



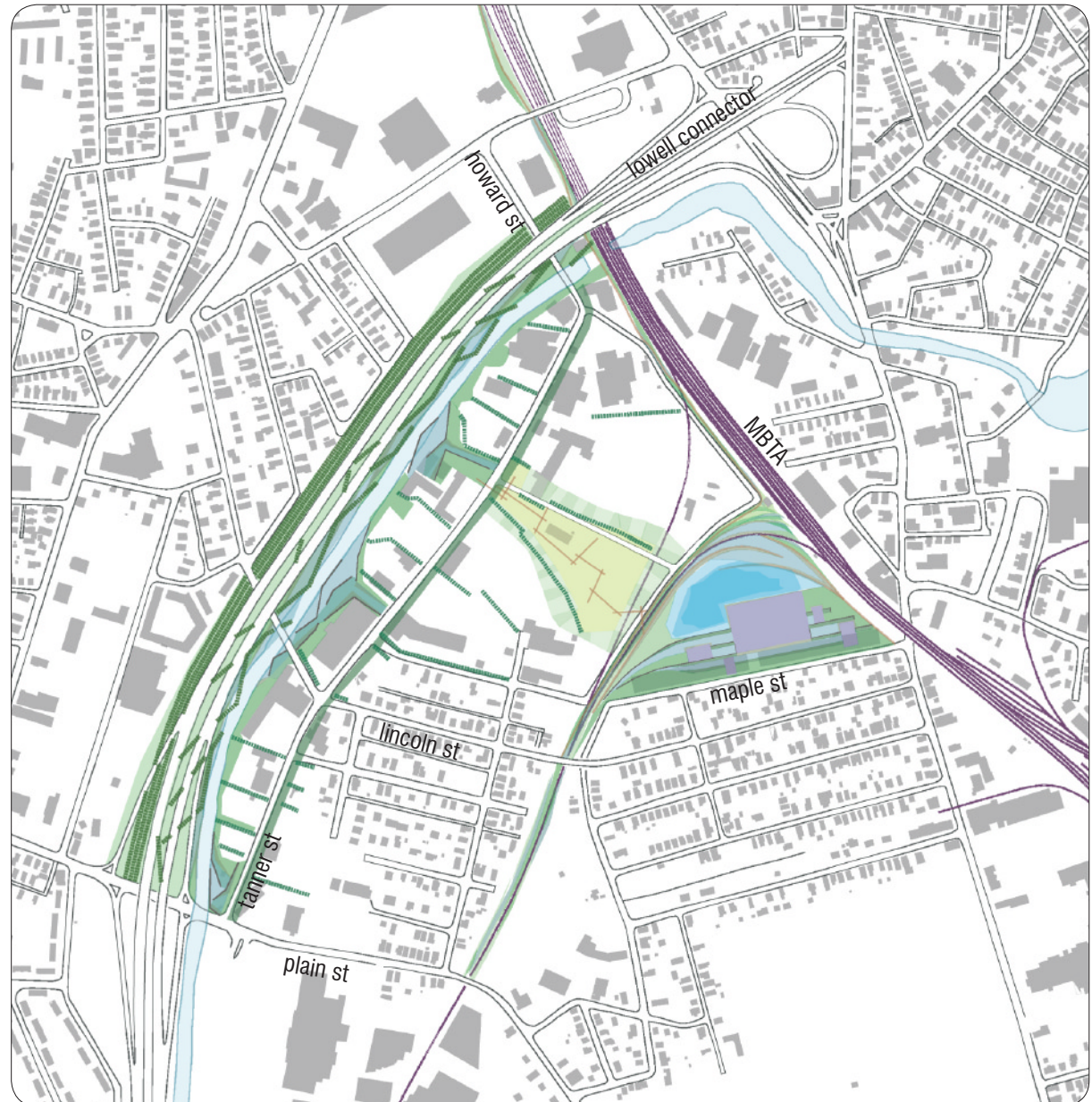


## 2.1 Long-Term District Framework

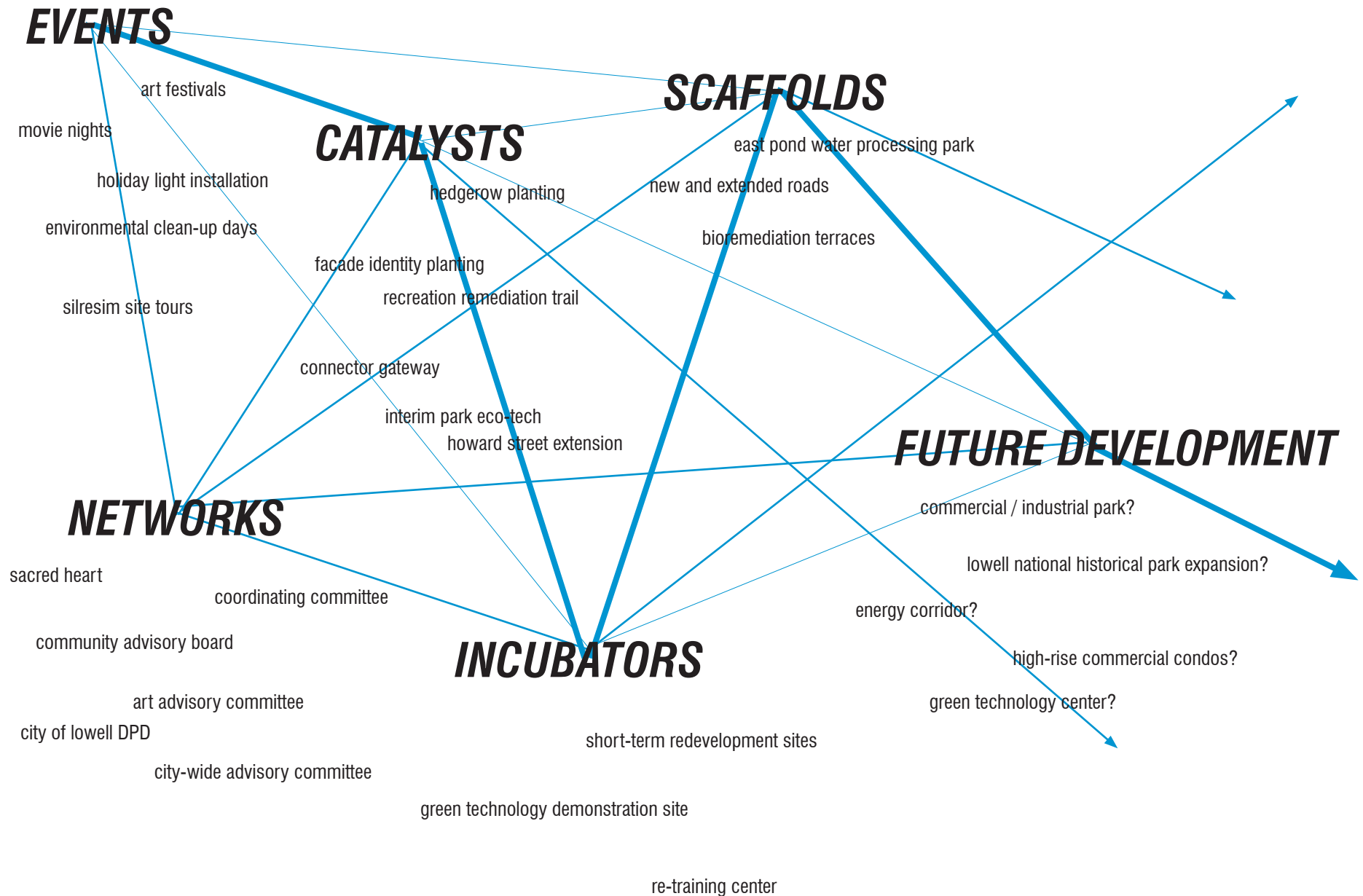
The proposed recovery strategy establishes a framework plan for long-term economic adaptation; the framework itself is conceived as an infrastructural-landscape hybrid that processes stormwater for the 120-acre district, re-makes its image, and physically re-organizes how it functions.

Since political and economic capital are currently being applied to other initiatives in the City, and since the remediation and funding allocation processes are anticipated to continue for a number of years, the proposed strategy also envisions staging events and interventions over a period of up to 20 years. These events and interventions are tactics designed to engage community participation, to change public perceptions, to generate broad-based interest in the urban landscape, to increase political pressure, to test proposed methods and strategies on limited sites, and to initiate a longer-term unfolding of improvements and developments.

The implementation strategy has five critical components: events, catalysts, scaffolds, incubators, and operational networks (see following pages).



long-term framework plan





### **2.2 Events (0-2 years)**

*temporary and interim events, designed to raise public awareness of the site, its diverse resources, and the clean-up process, as well as to allow participation in the site's recovery*

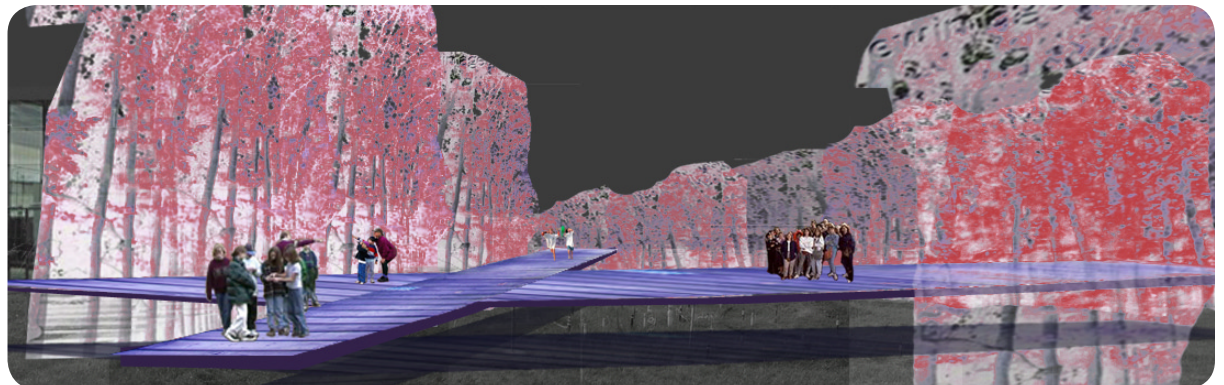
As a first step to social and environmental recovery, we imagine a series of art installations and festivals that overtake parts of the site and invite the public to participate and explore. Likewise, we imagine annual environmental clean-up days along River Meadow Brook and around East Pond, organized by local neighborhood organizations in conjunction with business owners. We propose initiating a long-term site documentation project involving various levels of the public schools and incorporating video, audio, and art components. We even imagine everyday happenings, such as the filling of potholes in the street, being made into day-long events that could be paired with public tours of the Silresim property and the water treatment plant. Picnics and kite-flying could occur atop the green grassy knolls of the temporary clay clap. Summer movies might be projected, and holiday light installations could illuminate the Superfund site during the month of December, encouraging people to come to the district after hours.



speculative view of an art festival along the railroad tracks near East Pond



speculative view of an environmental clean-up day along River Meadow Brook



speculative view of a temporary holiday light festival on the superfund site



### 2.3 Catalysts (0-5 years)

*interim installations, demolitions, and small-scale constructions that physically re-make the image of the site, thus attracting investor interest, bolstering funding plans and allocations, and initiating other transformations*

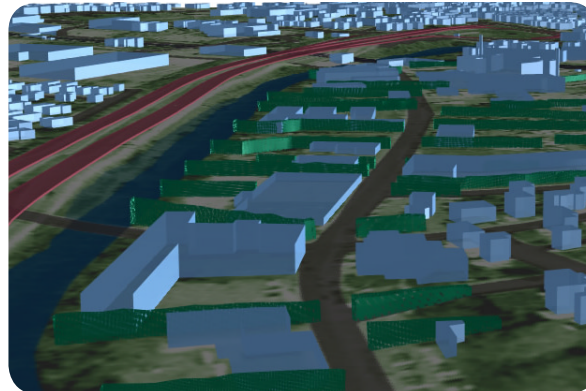
#### 2.3.1 Hedgerow Screening

In order to counteract prevalent negative impressions of the district, we propose installation of a screening and planting strategy designed to quickly enhance the area's image and to begin a process of ecological diversification.

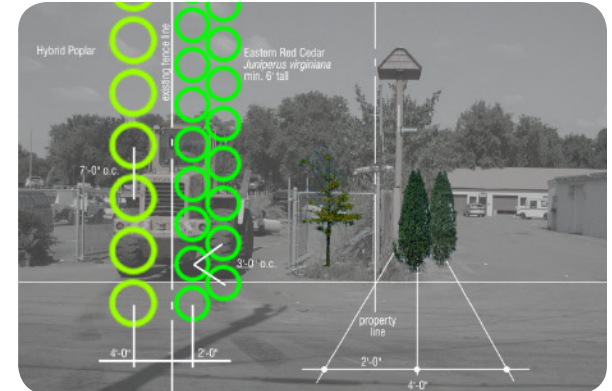
The primary component of this project is a hedgerow screening strategy, in which a double row of evergreens (for visual screening) and poplars (for phytoremediation) are planted along east-west property lines. The intent is to create a wholly new visual image, a new formal structure along the primary access street, and new east-west vegetal corridors that could develop and diversify as wild-life habitat connections between the Brook and the Pond. Individual hedgerows could be re-planted as lots are purchased and aggregated or subdivided, thus creating a new living framework for the district.

The hedgerow strategy would be supplemented by vine plantings on all blank building walls; different vine species and their corresponding horticultural characteristics (bloom, fall color, texture) would lend separate identities to businesses along the street. Finally, meadow grass seed would be spread on all exposed dirt and rubble surfaces, lending a softer impression to the street.

Installation of new plantings could be funded through public-private partnerships, wherein individual property owners contribute and the City obtains supplemental funding through various tree planting programs. Planting could be organized as a weekend-long event. The City would participate by constructing a landscape marker/gateway on its plot on the corner of Plain and Tanner Streets.



overview of district showing proposed hedgerow screens



planting diagram and view of proposed hedgerow screen



tanner street prior to installation of hedgerow screens and identity plantings

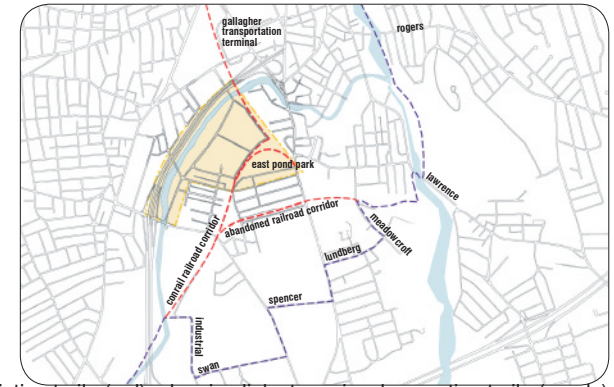


tanner street after installation of hedgerow screens and identity plantings



### 2.3.2 Remediation Trail

In order to facilitate better circulation connections between nearby residential neighborhoods and the center of town, we propose laying a multi-use recreational path along abandoned and seldom-used railroad tracks. Importantly, this new trail would allow for limited access to and through the less developed portions of the district and would generate public activity and interest. This trail would be planted with species that take up low-level contaminants in the soil. The low-cost planting scheme would be based on the presence and location of specific contaminants and could serve educational purposes.



remediation trails (red), showing links to regional recreation trails (purple)





### 2.3.3 Connector Gateway

The Lowell Connector serves as one of the most significant and highly travelled entrances to the City of Lowell, but the experience is negatively impacted by views into the adjacent Tanner Street district. These views, especially prominent in winter months when the foliage of trees along the River Meadow Brook has disappeared, reveal stacks of junk cars, five and six high, almost continuously from the Plain Street exit to the Howard Street overpass.

Recognizing the opportunity in this adjacency, we propose a new gateway scheme that would occupy the entire highway right-of-way from Plain Street to and including the Route 3A interchange. This short-term catalyst project is intended to create a better, more appropriate City gateway and to improve the image of the Tanner Street district primarily by screening it out.

The recommended gateway scheme would involve the planting of blocks of vivid plantings, including alternating stripes of meadow grasses and low wildflowers, and discrete masses of both evergreen and flowering trees. The idea is to create visual texture, ecological diversity, and formal rhythm along the 1-mile corridor. Select views to Tanner Street could be incorporated, if only to reveal the markers of clean energy initiatives, such as the proposed solar farm on the Silresim site.

Two other gateway schemes were considered. An industrial gateway scheme would involve evergreen louvers along the east side of the highway, in order to frame views to the industrial corridor; however, this scheme would only be desirable if significant changes to the district occurred in the long-term. A third scheme would include billboards and media boards along the corridor, which some consider a positive way to announce the approach to a large city; however, this alternative received little public support, with the exception of media boards that might announce public events being held throughout the City.



option a (recommended): planted gateway scheme, with glimpses of green technology installations



option b: industrial gateway scheme, with views to industrial corridor



option c: media scheme, with billboards and digital media boards for changing displays and announcements



### **2.3.4 Interim Park Eco-Tech / Silresim Superfund Site**

Finally, we propose a strategy for accessing and occupying the Superfund site itself during the remediation process, in order to educate people about the site's history and ongoing clean-up and to begin a major transformation of both image and perception.

Here an interim "Park Eco-Tech" is proposed, which would engage the remediation process as the "content" for this innovative open space. Movable walkways would allow for limited public access, while a mobile solar farm would generate energy for the water treatment facility and establish a new "clean energy" image for the district; both would change location over time in response to the operations of the EPA. These strategies would be supplemented by phytoremediation demonstration projects along the perim-

eter of the site and the re-cladding of the treatment plant in order to allow people to see into the facility and check out the intriguing array of pipe, pumps, and tanks.

Together, these proposals would create positive, educational civic spaces and grounds for civic events that would have a significant impact on the neighboring communities and the city at large.





## 2.4 Scaffolds (5-20 years)

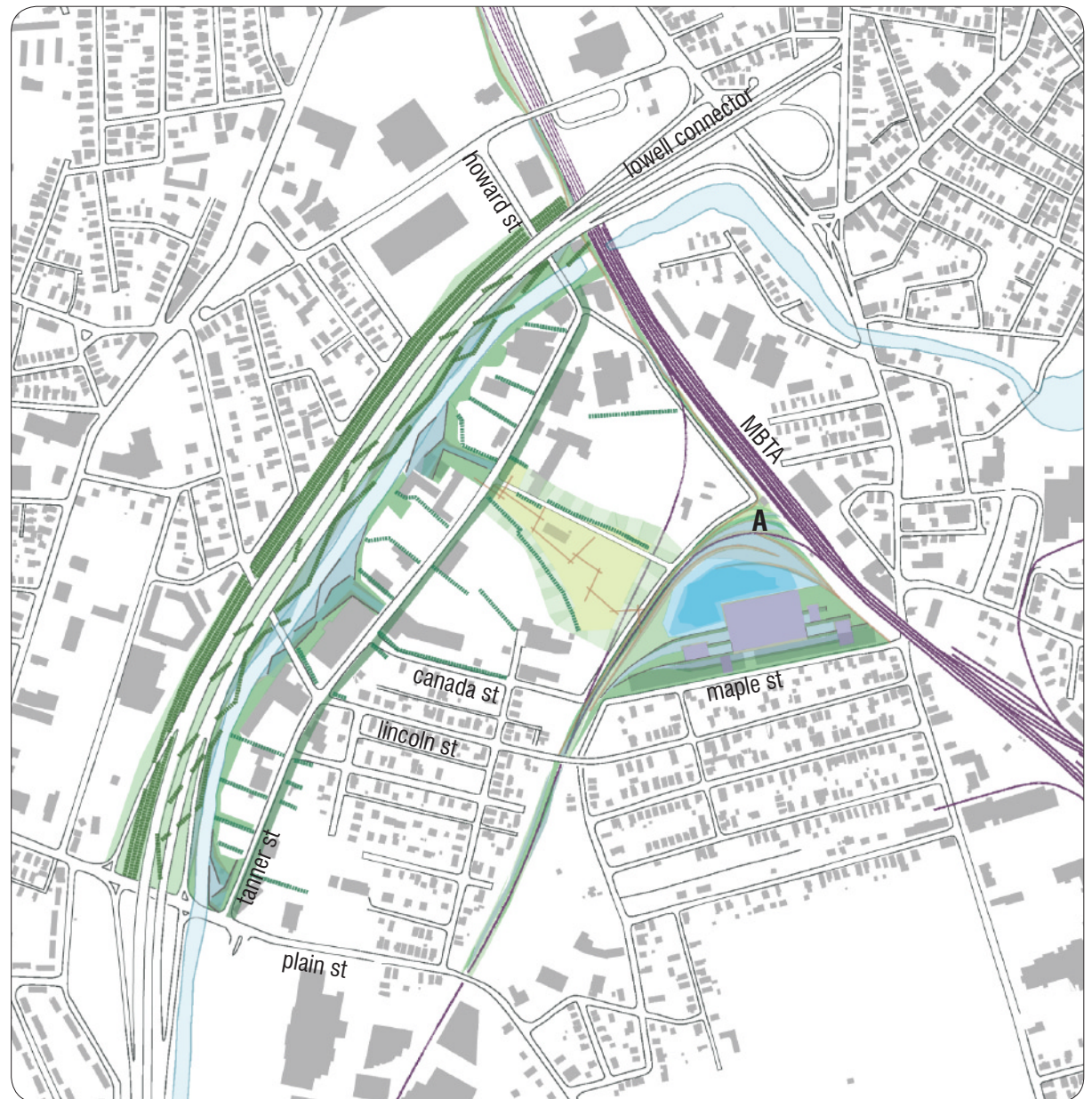
*physical infrastructures and frameworks that require significant public and private investment, re-making the circulatory, infrastructural, and ecological foundations of the district*

Once perceptions begin to change about the opportunities available in and around the district, we imagine mounting political pressure from constituents and increasing investor interest will reinforce the city's efforts to assemble funds to implement broad changes in the district.

### 2.4.1 Framework Plan

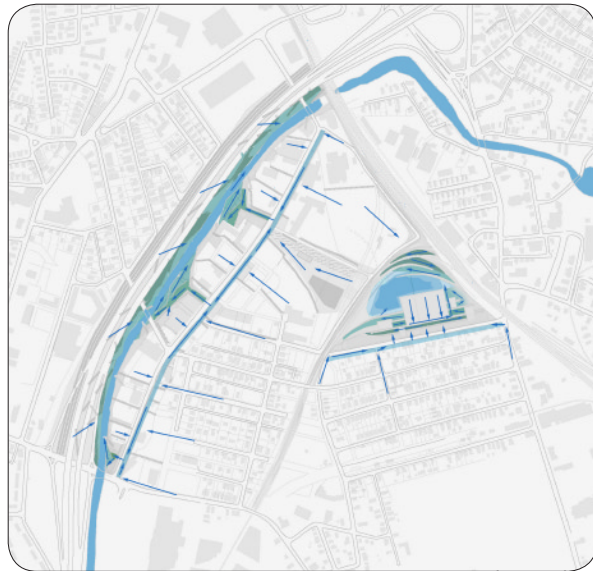
We propose constructing an integrated landscape-infrastructural framework for the district that will simultaneously address issues of function, circulation, image, ecology, remediation, and recreation via a series of innovative stormwater cleansing interventions. The impulse for such a system stems from the city's current Combined Sewer Overflow (CSO) system, which releases raw sewage into area streams and rivers when the stormwater system is overburdened by heavy rainfall events. Rather than spending hundreds of millions of dollars to lay new pipe to separate stormwater and sewerage systems and conform to current orders from the watershed division of the EPA, we propose constructing a bioremediation scheme that would capture, process, and cleanse stormwater in place and slowly release it into the nearby Brook and Pond. Such a strategy would complement the Regional Wastewater Utility's plan for an underground CSO processing station, to be located just to the north of East Pond (A), and would greatly enhance the EPA Superfund division's goal of intercepting stormwater prior to it penetrating the ground and exacerbating groundwater contamination.

The framework would also entail the construction of a number of new roads. Canada Street would be extended east to the railroad right of way; a new street would then turn to the northeast and curve gently until meeting the

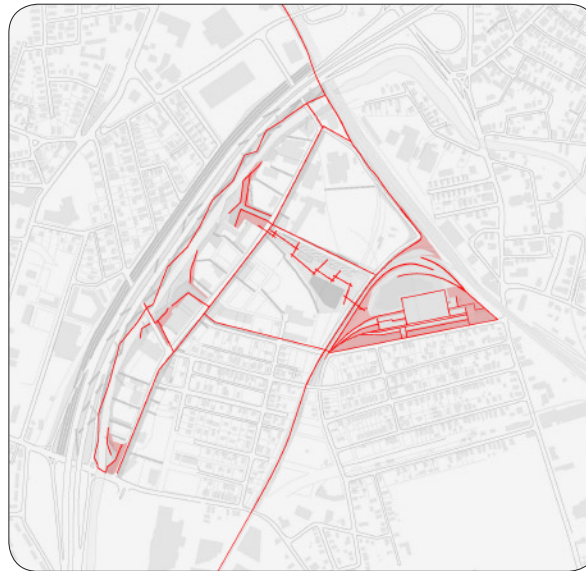


long-term framework plan





water system



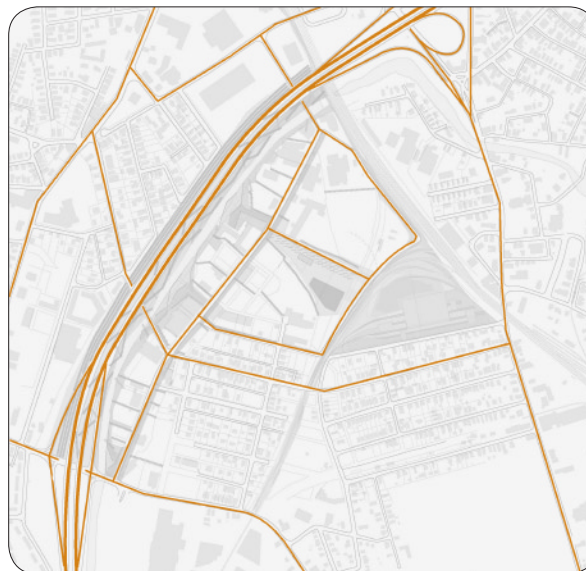
pedestrian system



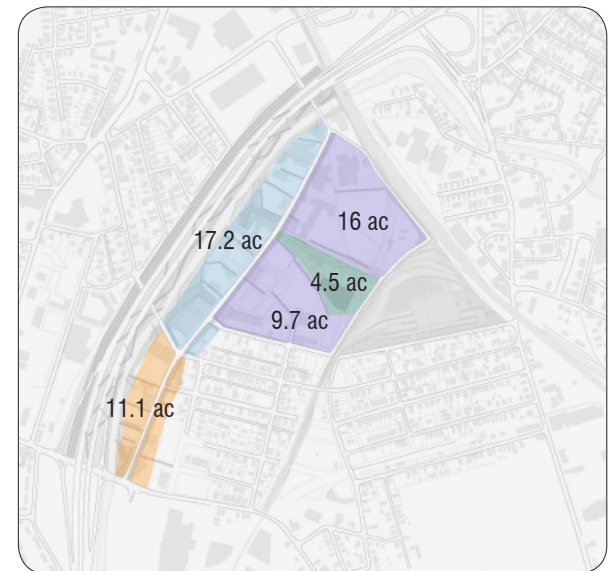
vegetation system

Boston and Maine / MBTA corridor at a perpendicular; the road would turn to the northwest parallel with the rail corridor, then return to Tanner Street at Howard Street. Another road would extend east/southeast from Tanner Street along the north edge of the Silresim property. Collectively, these improvements will provide access to properties formerly subject to limited development opportunities.

As a system, these interventions create a new physical framework for the district, within which any number of business expansion and redevelopment proposals are possible. As visual improvements and signals of public initiative and investment, they encourage private economic investment in the area. Notably, the coordination and integration of professional design and engineering disciplines and transportation, infrastructural, and open space goals allows the project to qualify for a wide array of potential funding programs not usually available to a project that addresses only one or two of the measures involved.



industrial traffic system



generalized acreages



### 2.4.2 Bioremediation Terraces

We propose that the entire length of the River Meadow Brook, as it passes from Plain Street to the MBTA overpass, be transformed into a hybrid ecological infrastructure that processes and cleanses stormwater from parcels on either side of Tanner Street to the east and from the Lowell Connector to the west.

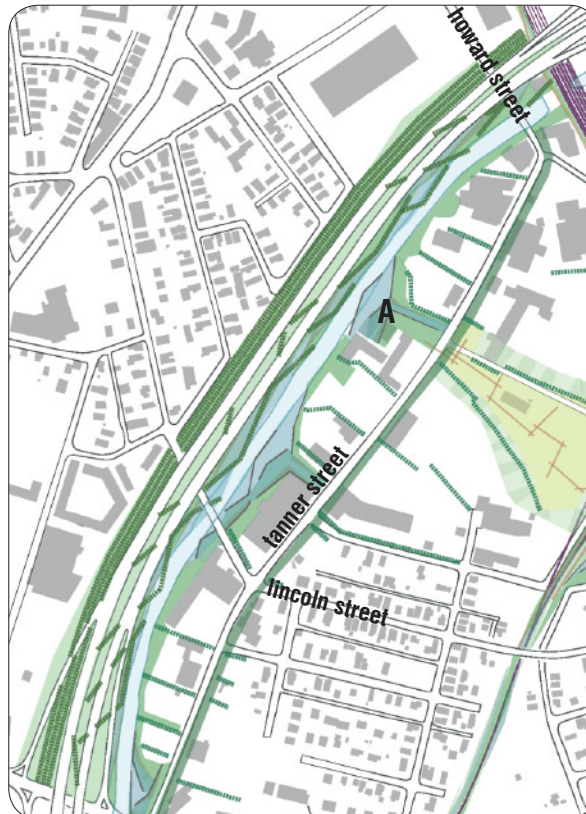
Properties and public spaces on the east side of the Brook would drain into a reconstructed Tanner Street, capable of collecting and temporarily storing water beneath its surface. Water would be channeled from under Tanner Street and directly from adjacent properties into a series of bioremediation terraces along the edge of the Brook; the terraces would allow for filtration, primary, and secondary treatment to occur in discrete areas by plants that would aid in the removal and processing of oils and low-level contaminants washing off source areas. The processed water would eventually be discharged into the Brook.

Public access and overlook areas could be introduced at major installation sites, including the Cambridge Street right-of-way and at the southern entrance to Tanner Street from Plain Street. Other areas on the east side of the Brook would be re-graded and configured to capture and treat water from parcels immediately adjacent, while the west side could be re-graded as a series of longer and larger terraces that would capture water from the highway and could potentially include a public access trail.

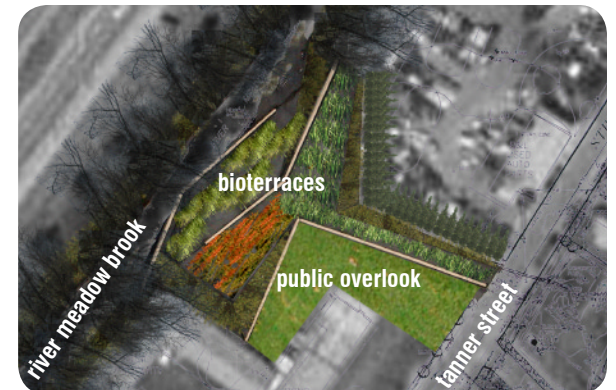
The Cambridge Street site (A) has been designated as the location for an initial pilot installation to test capacity and plant material performance; this should be implemented in the 2-5-year timeframe as one of the project “catalysts.” It is also intended that this system serve as a model for stormwater processing through the City and, in fact, across the country; it could eventually be replicated along the entire Brook and in other riverside locations in all of Lowell.



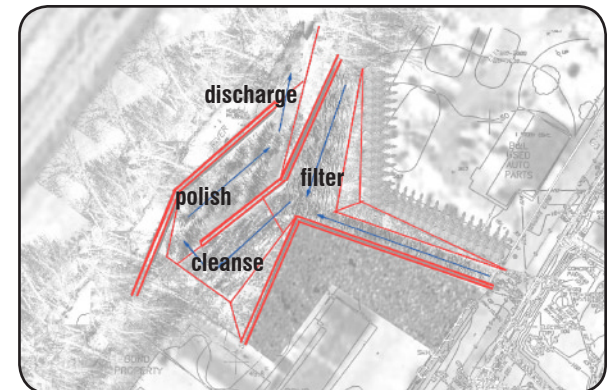
aerial view of the river meadow brook, c. 1990



plan indicating bioremediation terraces along brook

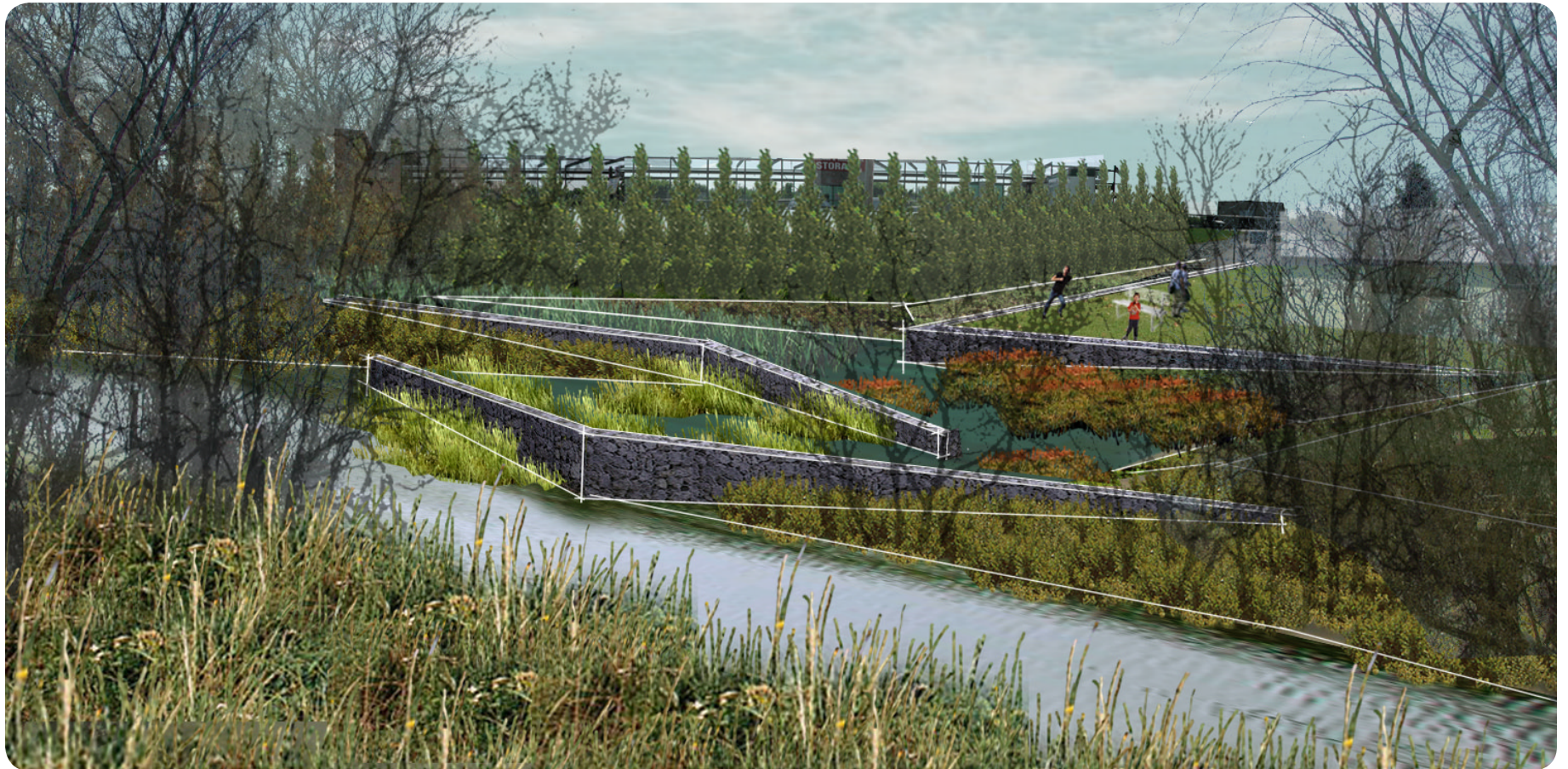


conceptual site plan, pilot project



conceptual water flow diagram, pilot project





view of proposed bioterraces, at site of pilot installation



### 2.4.3 East Pond Water Processing Park

The presence of East Pond as a significant visual and ecological resource and its location close to a residential population underserved by open space opportunities together suggest the creation of a hybrid ecological infrastructure and public open space that could address multiple needs and functions on a single site.

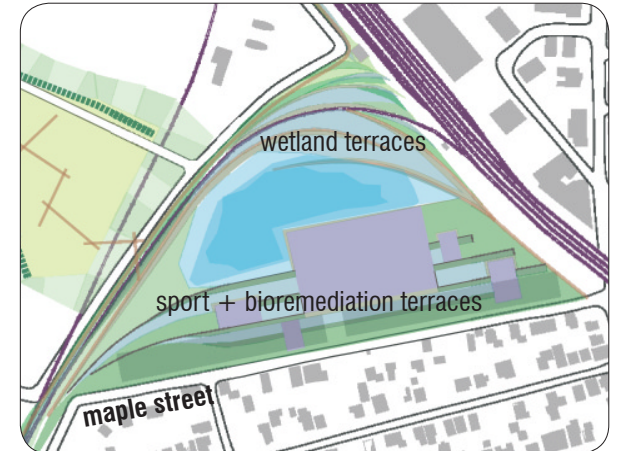
Thus, we propose that nearby properties and streets would drain toward the pond and would be intercepted by large wetland/bioremediation terraces on the north side of the pond and a combination of sport and bioremediation terraces on the south side of the Pond, adjacent to Maple Street. The terraces would process and cleanse the stormwater, much like the terraces along the Brook. Layered onto this infrastructure are a series of public access strategies that provide the residential population with both active sport courts and fields (soccer, basketball, volleyball, children's play zone) and passive recreation opportunities (eco-paths around the pond, wildlife observation areas, an urban forest buffer with overlook). Since the entire site is generally formed like a bowl, the park could also serve as a flood catchment area during intense rain events, with an overflow linked directly to the Brook. Together, these elements form a hybrid landscape-habitat-infrastructure-sports park that meets social, cultural, ecological, functional, and civic goals and could serve as a national model for open space and infrastructure design.



aerial view of east pond, c. 1990



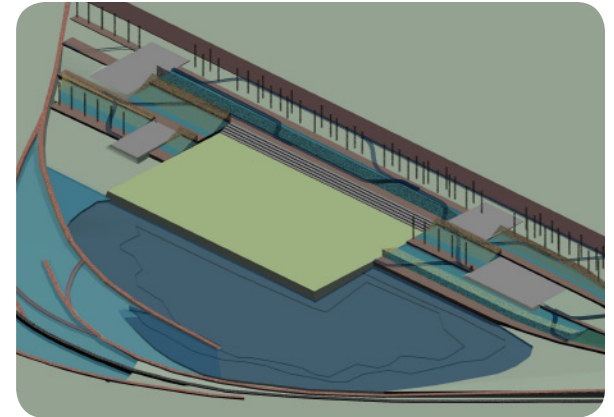
existing view of east pond, looking east



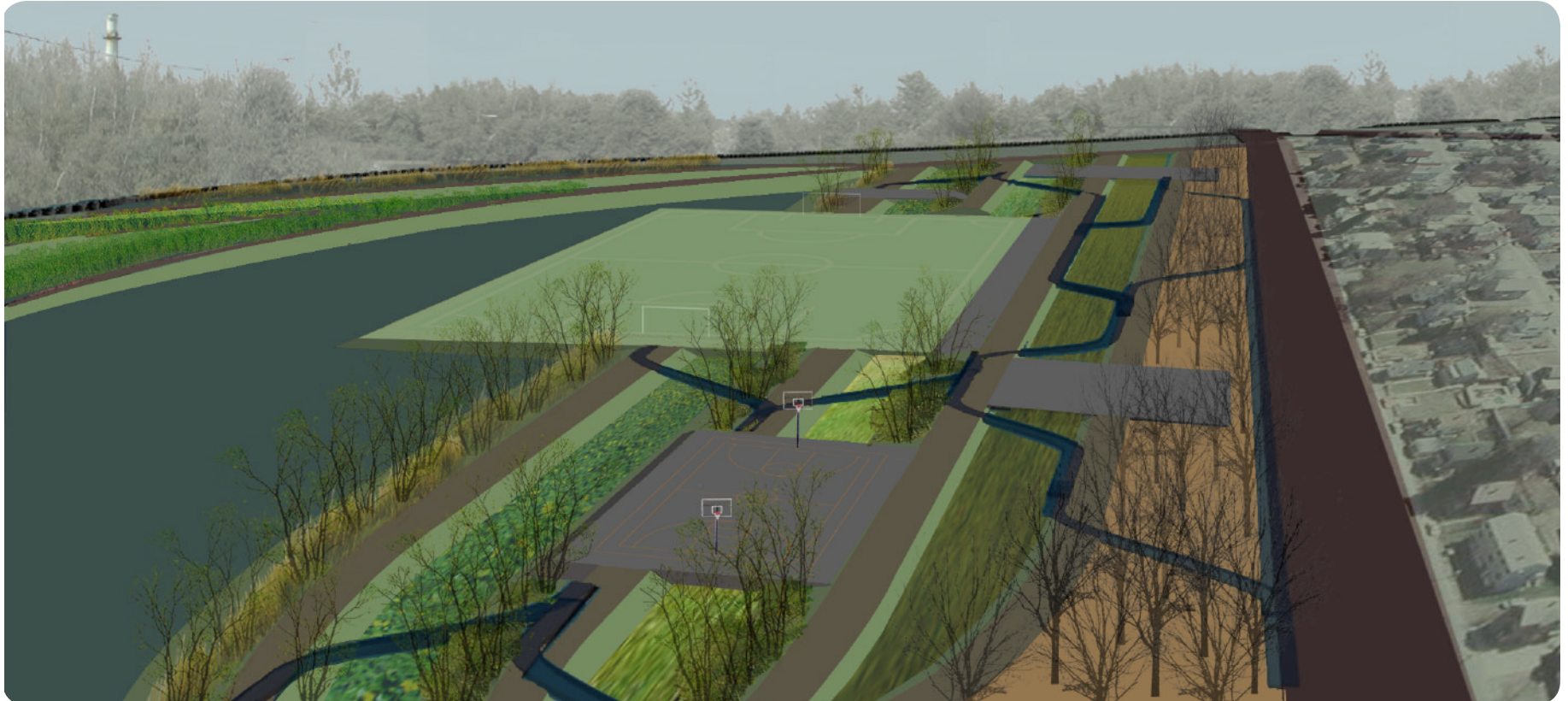
plan of proposed park



section through sport + bioremediation terraces, east pond to maple street



functional model (above) and overview looking east (below) of proposed park







view of proposed sport + bioremediation terraces, looking east





view of proposed wetland terraces, looking west



## **2.5 Incubators (2-10 years)**

*small-scale business ventures geared to providing short-term returns but serving as long-term models for or generators of new business expansion and redevelopment*

While politics and the economy cannot be predicted long-term, we believe it is important to implement a select group of development incubators that both address current interests of civic and business leaders and serve as physical and economic signposts to a broader, longer-term economic transformation of the district.

### **2.5.1 Green Technology Demonstration Site**

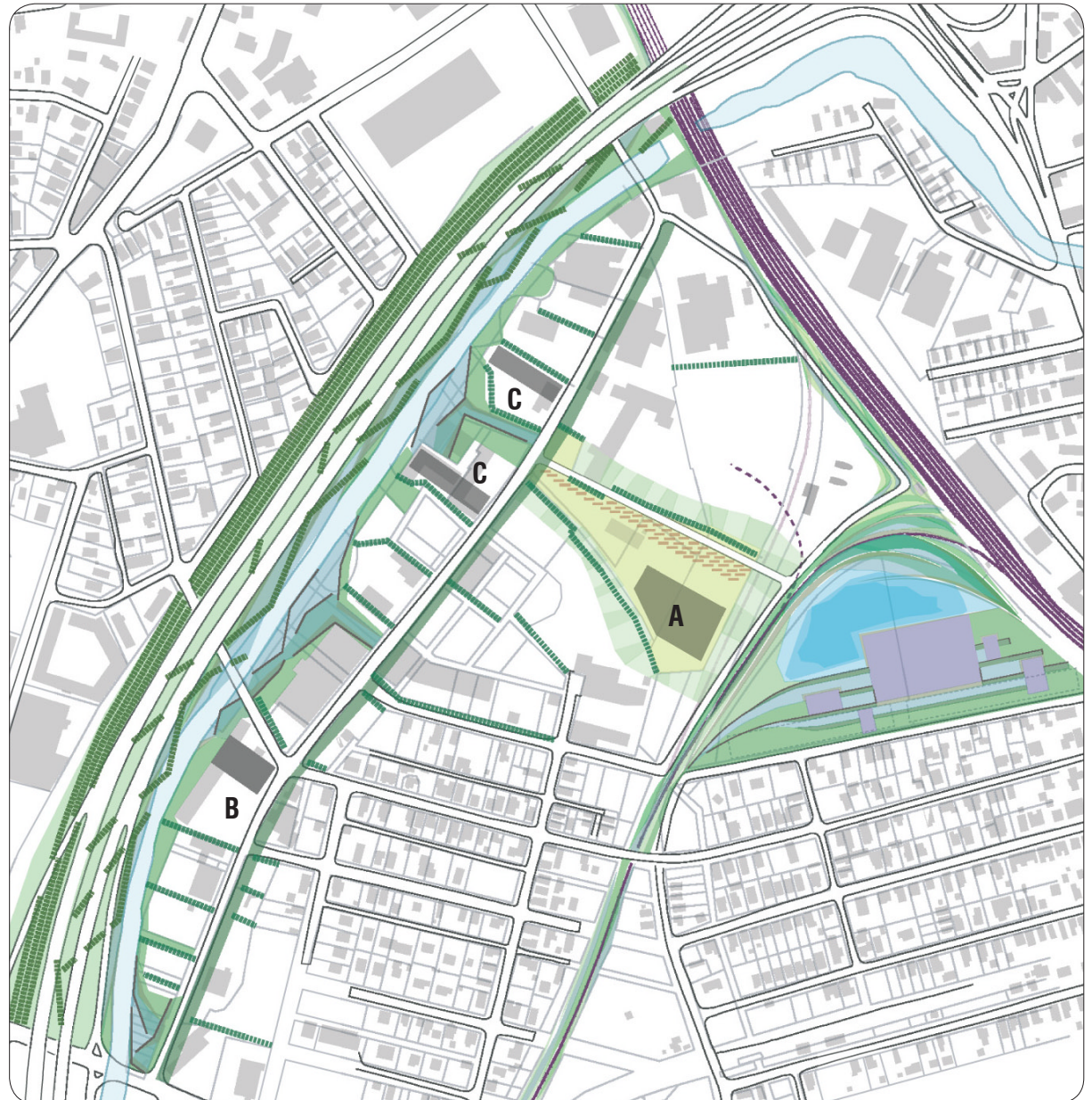
Building on the city's clean energy and green industry initiatives, we propose that the Silresim property be transformed (after soil remediation is complete in 5-8 years) into a green technology demonstration project (A); the hope is that the project will establish a model for cleaner production and research technologies, will encourage public-private partnerships, and will encourage the development of similar projects nearby.

### **2.5.2 Re-Training Center**

In conjunction with this facility, the city could site a technology re-training center in one of the historic brick warehouses in the district (B), bringing a positive government presence to the area and re-using a building better suited to office/commercial space than car sales (its current use). The chosen location, at the corner of Tanner and Lincoln Streets, occupies a relatively high-visibility site at a potentially important nexus of community, commercial, residential, and industrial uses.

### **2.5.3 Short-term Redevelopment Sites**

Finally, we imagine that the properties on either side of the Cambridge Street bioremediation pilot project (and across Tanner Street from the Silresim property) should be designed





nated short-term redevelopment sites (C). Their location adjacent to the terrace pilot and green technology demonstration projects, as well as their central location within the district, will help generate momentum for future stages of work and signal a significant investment of both public and private resources. The intent is to make the district more attractive to other developers or current business owners who want to improve and/or expand their businesses.

#### **2.5.4 Future Potentials**

The new physical framework for the district establishes a flexible layout of development parcels, each with significant frontage on the proposed new roads. One can imagine creating either numerous groups of small properties and businesses, or a number of super-sites for larger ventures, should multiple properties be assembled for these purposes. This plan leaves the ultimate build-out of individual parcels open-ended, acknowledging that future economies and City administrations may have more direct influence over the specifics of business expansion and/or redevelopment than is possible at present.

Illustrated, then, are a number of possibilities for limited, small-footprint, and large-footprint development scenarios. Regardless of how the area evolves, the actions taken over the course of the next ten years are certain to raise property values in the area and, in return, to generate additional tax income for the City.



development scenario 1: existing buildings and proposed incubators



development scenario 2: small- to medium-size build-outs



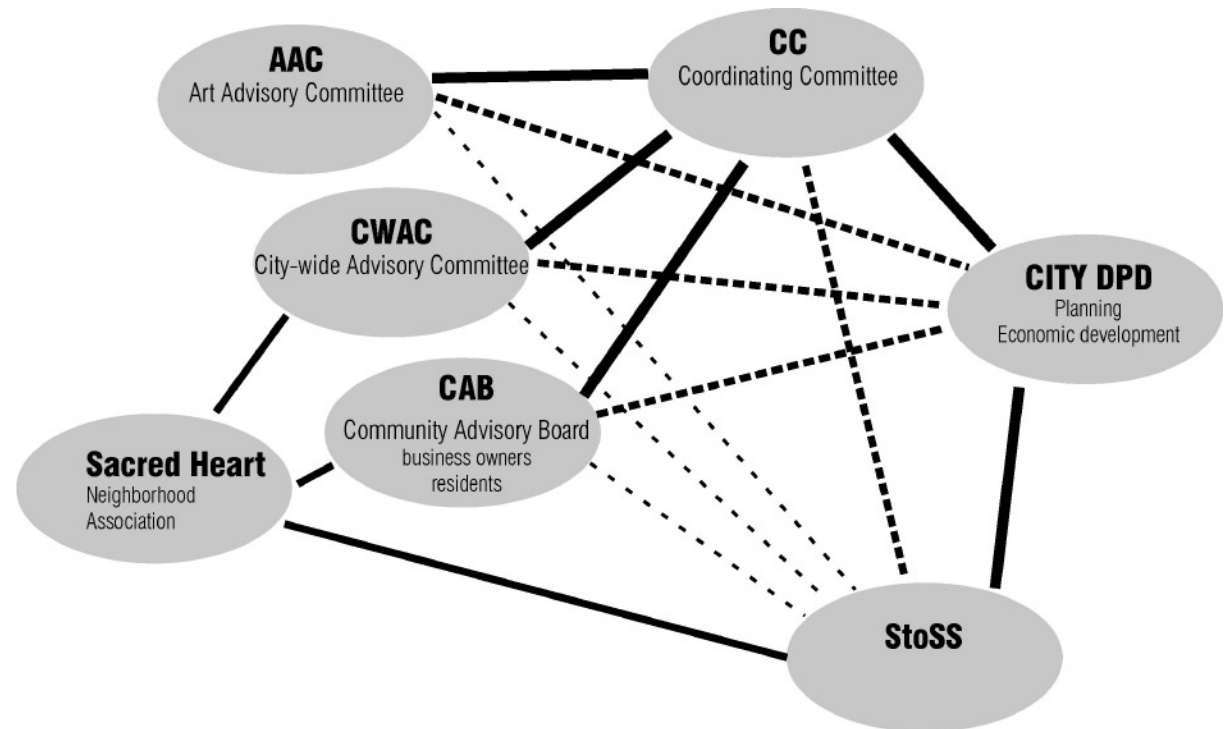
development scenario 3: medium- to large-size build-outs

## 2.6 Operational Networks (project duration)

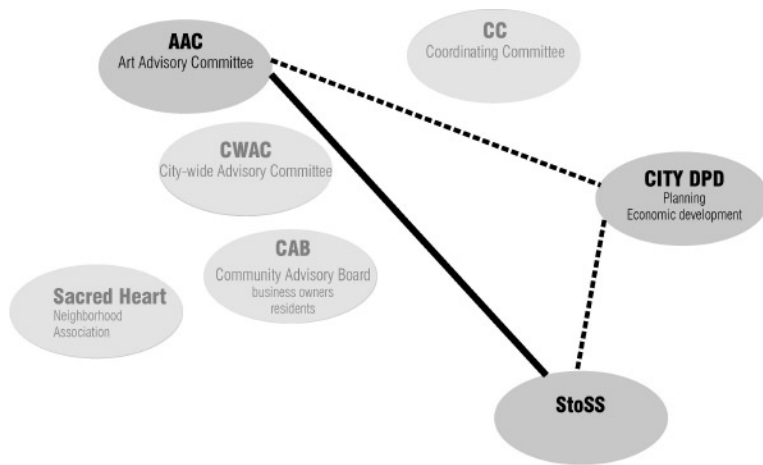
*strategic coalitions of public, private, non-profit, community, and special interest organizations and agencies that change with individual initiatives and lessen the pressure on the city to single-handedly move the project forward*

A project of this magnitude and scope cannot proceed under the direction of a small city's planning / development department, nor would it advance if initiated solely by limited, grassroots efforts. In order to deal with this reality, we have assembled a wide range of agencies, organizations, stakeholders, and potential constituencies (some of whom could not imagine at the start why they would be interested in a series of "junkyard sites") and formed a network of dynamic coalitions to oversee various parts and stages of the project. The idea is that a number of loosely coordinated efforts, organized by different coalitions, will begin simultaneously. For each project, a different coalition of entities would be formed to best address the funding and implementation issues involved. Thus, neither local government nor any single group would be responsible for all aspects of the project. If individual initiatives stalled due to politics, funding, or waning interest, the others could still proceed independently, assuring continuous progress toward the ultimate goal of transformation and renewal.

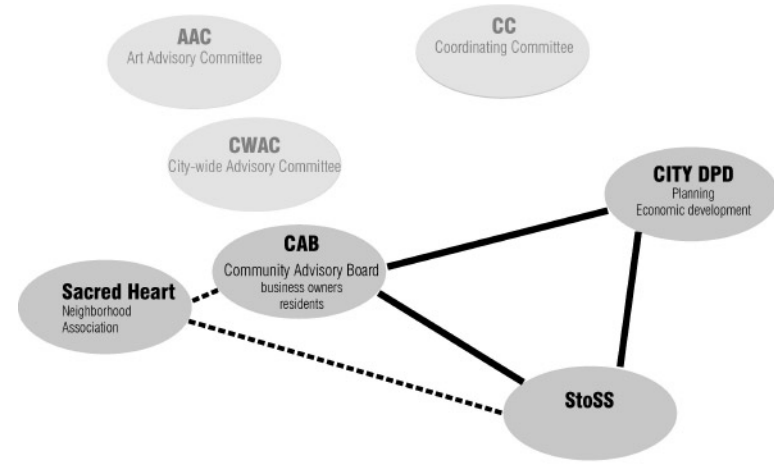
The Sacred Heart Neighborhood Association and the Tanner Street Community Advisory Board have already been very active in formulating this plan. The City-wide Advisory Committee and the Art Advisory Committee were both formed during the course of the study in order to broaden the range of constituencies directly involved; we imagine that both will remain active throughout the evolution of this project (the latter probably in conjunction with the Cultural Organization of Lowell, or COOL). Finally, we propose the formation of a Coordinating Committee, composed of representatives from the others, that will work continuously with the Division of Planning & Development to oversee projects and communicate progress to their individual constituencies.



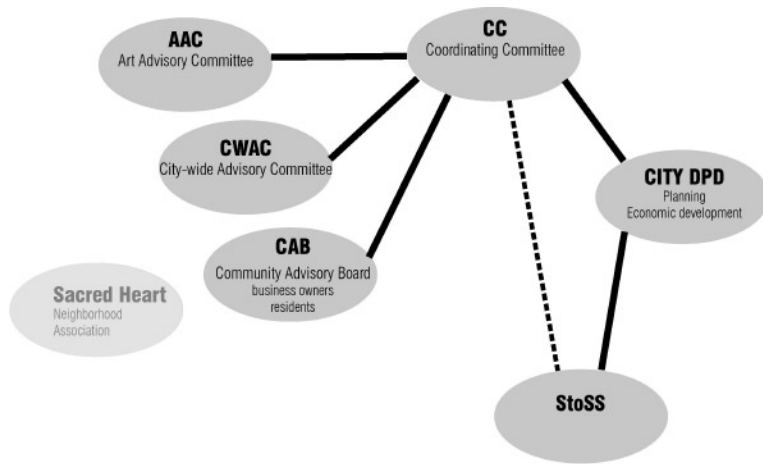
conceptual network of strategic coalitions



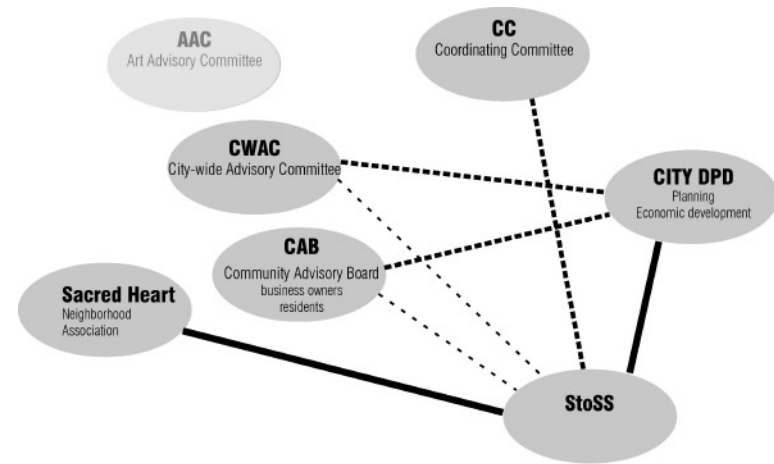
art festival coalition



hedgerow screening coalition

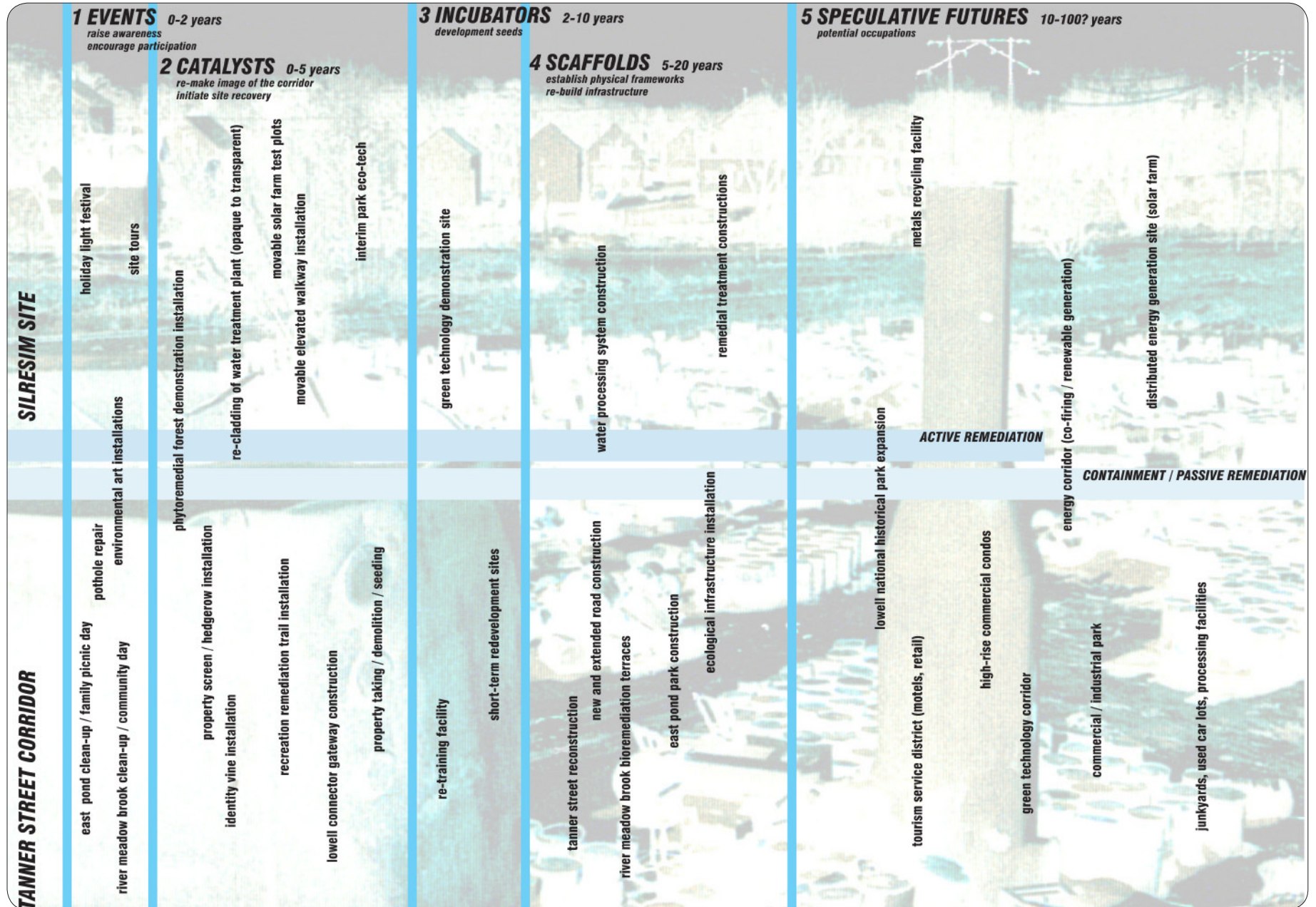


bioremediation terraces coalition



east pond park coalition







### **2.8.1 First Priorities**

Immediate actions are required on three fronts, in order to initiate the recovery process. These actions fall into three broad categories: Aesthetic, to improve the image of the site; Administrative, to establish oversight frameworks and entities to guide the recovery; and Physical, to begin the process of physical and structural transformation. The strategic design and staging of short-term public improvements are intended to provide the necessary catalysts for public participation and private investment, with the goal of continuing initiatives on a financially self-sustaining basis for subsequent years.

#### ***Aesthetic***

- *work with local and state agencies and business owners to clear public rights-of-way along River Meadow Brook*
- *organize clean-up days along Brook and around East Pond*
- *implement screening strategies in conjunction with local businesses*

#### ***Administrative***

- *establish DPD as oversight entity with full-time TSI coordinator*
- *create framework for negotiating land swaps and relocations, as well as opportunities for business expansion*
- *formalize role of the Cultural Organization of Lowell (COOL) and the Art Advisory Committee*
- *establish structure for Coordinating Committee, with members drawn from Community Advisory Board, and Art and City-Wide Advisory Committees*

#### ***Physical***

- *develop phytoremediation strategy for Silresim site and adjacent properties in conjunction with EPA's phytoremediation specialist*
- *conduct environmental site assessments at Cambridge Street bioremediation terrace site and along railroad rights-of-way*
- *implement recreation remediation trail in conjunction with local organizations*
- *implement bioremediation terrace pilot project at Cambridge Street as demonstration of alternative stormwater infrastructure*

More generally, the initial role for the City is to provide the organizational infrastructure for neighbors, residents, business owners, investors, and community leaders committed to implementing wholesale environmental improvements and creating economic opportunity in the Corridor.

### **2.8.2 Future Actions**

To a certain extent, the precise unfolding of actions and initiatives cannot and should not be scripted. This report and the various initiatives outlined herein are intended as guides or frameworks toward recovery, for use by the City, oversight committees, and various local organizations. Those suggestions that fall under Events and Catalysts should receive priority status, after those first priorities outlined above. Clearly, the best opportunity for long-term action lay in a coordinated strategy with the Lowell Wastewater Utility to implement the framework plan as a test case for alternative stormwater processing, with the hope of more widespread implementation throughout the City thereafter.

